

WHAT IS CLAIMED IS:

1. An intrusion detection system comprising:
a microwave transceiver configured to detect motion in a protected space, said microwave transceiver generating a first signal;
a first infrared sensor configured to detect a source of infrared energy in a plurality of upper detection zones within the protected space, said first infrared sensor generating an upper sensor signal;
a second infrared sensor configured to detect a source of infrared energy in a plurality of lower detection zones positioned below the upper detection zones within the protected space and intersecting a floor surface within the protected space, the second infrared sensor generating a lower sensor signal; and
a processor configured to receive the first signal, the upper sensor signal and the lower sensor signal, said processor being configured to generate an alarm signal in response to the first signal exceeding a threshold value, the threshold value being varied in response to a relationship between the lower sensor signal and the upper sensor signal.
2. The system of Claim 1 wherein infrared energy from the protected space is focused upon the first and second infrared sensors with substantially equivalent efficiency.
3. The system of Claim 1 wherein gaps between adjacent ones of the detection zones all have maximum heights of less than about 3.5 feet.
4. The system of Claim 1 wherein the threshold value is relatively increased in response to the lower sensor signal indicating the presence of a source of infrared energy and the upper sensor signal indicating the absence of a source of infrared energy.
5. The system of Claim 1 wherein the relationship comprises a ratio between respective amplitudes of the lower sensor signal and the upper sensor signal.
6. The system of Claim 1 wherein the threshold value comprises a threshold voltage value.
7. The system of Claim 1 wherein the lower protection zones are adjacent a portion of the floor surface disposed approximately between 0 feet and 23 feet away from said second infrared sensor.

8. The system of Claim 1 wherein at least one of the upper detection zones intersects a portion of the floor surface disposed approximately between 23 feet and 40 feet away from said first infrared sensor.

9. The system of Claim 1 further comprising a housing containing each of said microwave transceiver, said first infrared sensor and said second infrared sensor.

10. An intrusion detection system comprising:
a microwave transceiver configured to detect motion in a protected space, said microwave transceiver generating a first signal;
a first infrared sensor configured to detect a source of infrared energy in a plurality of upper detection zones within the protected space, said first infrared sensor generating an upper sensor signal;

a second infrared sensor configured to detect a source of infrared energy in a plurality of lower detection zones positioned below the upper detection zones within the protected space, the second infrared sensor generating a lower sensor signal; and

a processor configured to receive the first signal, the upper sensor signal and the lower sensor signal, said processor being configured to generate an alarm signal in response to the first signal crossing a threshold value a required number of times within a time period, at least one of the required number and the time period being varied in response to a relationship between the lower sensor signal and the upper sensor signal.

11. The system of Claim 10 wherein the lower protection zones are adjacent a first portion of the floor surface disposed approximately between 0 feet and 23 feet away from said second infrared sensor, and at least one of the upper detection zones intersects a second portion of the floor surface disposed approximately between 23 feet and 40 feet away from said first infrared sensor.

12. The system of Claim 10 wherein infrared energy from the protected space is focused upon the first and second infrared sensors with substantially equivalent efficiency.

13. The system of Claim 10 wherein the required number varies with a ratio between an amplitude of the lower sensor signal and an amplitude of the upper sensor signal.

14. The system of Claim 10 wherein the time period varies inversely with a ratio between an amplitude of the lower sensor signal and an amplitude of the upper sensor signal.

15. The system of Claim 10 wherein gaps between adjacent ones of the detection zones all have maximum heights of less than about 3.5 feet.

16. The system of Claim 10 wherein the relationship comprises a ratio between respective amplitudes of the lower sensor signal and the upper sensor signal.

17. An intrusion detection system comprising:
a microwave transceiver configured to detect motion in a protected space, said microwave transceiver generating a first signal having a characteristic;
a first infrared sensor configured to detect a source of infrared energy in a plurality of upper detection zones within the protected space, said first infrared sensor generating an upper sensor signal;

a second infrared sensor configured to detect a source of infrared energy in a plurality of lower detection zones positioned below the upper detection zones within the protected space, the second infrared sensor generating a lower sensor signal; and

a processor configured to receive the first signal, the upper sensor signal and the lower sensor signal, said processor being configured to generate an alarm signal in response to the characteristic of the first signal exceeding a threshold value, the threshold value varying in response to a relationship between the lower sensor signal and the upper sensor signal.

18. The method of Claim 17 wherein the lower detection zones are disposed adjacent a first portion of the floor surface disposed approximately between 0 feet and 23 feet away from said second infrared sensor, and at least one of the upper detection zones intersects a second portion of the floor surface disposed approximately between 23 feet and 40 feet away from said first infrared sensor.

19. The method of Claim 17 wherein infrared energy from the protected space is focused upon the first and second infrared sensors with substantially equivalent efficiency.

20. The method of Claim 17 wherein the characteristic of the first signal comprises a voltage.

21. The method of Claim 17 wherein the characteristic of the first signal comprises a number of times a voltage of the first signal crosses a voltage level.

22. The method of Claim 17 wherein the relationship comprises a ratio between an amplitude of the lower sensor signal and an amplitude of the upper sensor signal.

23. An intrusion detection system comprising:
a microwave transceiver configured to detect motion in a protected space, said microwave transceiver generating a first signal;
a first infrared sensor configured to detect a source of infrared energy in a plurality of upper detection zones within the protected space, said first infrared sensor generating an upper sensor signal; and
a processor configured to receive the first signal and the upper sensor signal and generate an alarm signal when the first signal exceeds a variable threshold value wherein said variable threshold value has a maximum value when said upper sensor signal indicates the absence of a infrared energy source in said upper detection zones and, when said upper sensor signal indicates the presence of infrared energy source in said upper detection zone, said variable threshold value is decreased as said upper sensor signal decreases.

24. The system of Claim 23 wherein the upper detection zones intersect a floor surface no closer than approximately 23 feet from some said first infrared sensor.

25. The system of Claim 23 further comprising a second infrared sensor configured to detect a source of infrared energy in a plurality of lower detection zones positioned below the upper detection zones within the protected space and intersecting a floor surface within the protected space.